UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,534	06/05/2007	Xiaodong Li	320529496US1	4954

25096 7590 01/07/2010
PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER	
SEKUL, MARIA LYNN	
ART UNIT	PAPER NUMBER
2461	

NOTIFICATION DATE	DELIVERY MODE
01/07/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentprocurement@perkinscoie.com
skempe@perkinscoie.com

Office Action Summary	Application No.	Applicant(s)
	10/583,534	LI ET AL.
	Examiner	Art Unit
	MARIA L. SEKUL	2461

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 28 September 2009.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-41 is/are pending in the application.

4a) Of the above claim(s) 3-5,7,9,10,12 and 14-21 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2,6,8,11,13,22-41 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 28 September 2009 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1, 2, 6, 8, 11, 13 and 22-41 are pending. Claims 3-5, 7, 9-10, 12 and 14-21 are cancelled. Claims 22-41 are newly added.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 6 and 11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 1-2, 11, 13, 22-41** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to **claims 1, 11, 22, 27, 32, and 37**, the claims recite the limitation “a core-band, including a plurality of subcarrier groups”, or similar limitation. Applicant's Specification discloses on p. 5, ¶ 22, "the data subcarriers can be arranged into groups called subchannels to support scalability and multiple access". This grouping refers to supporting the variable bandwidth on the operating portion of the channel. Applicant’s

Specification describes the core-band on p. 7, ¶ 32, but does not disclose that the core-band is composed of a plurality of subcarrier groups.

Claim 2, 13, 23-26, 28-31, 33-36 and 38-41 are rejected as being dependent on a rejected base claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1, 2, 6, 8, 11, 13,** are rejected under 35 U.S.C. 103(a) as being unpatentable over **van Nee (US Patent No. 6,175,550)** in view of **Vanderaar et al. (US PGPub 2007/0208884)** ("Vanderaar").

As to **claim 1**, van Nee discloses a method:

"utilizing, by the base station, a specified number of subcarriers to construct a variable bandwidth wireless channel" (scalable OFDM system that adjusts number of carriers for the desired transmission rate, **col. 3, lines 22-27**);

"utilizing by the base station groups of subcarriers, wherein each group includes a plurality of subcarriers" (this was well known in the art at the time the invention was made that subchannels can comprise one or more subcarriers);

"maintaining a fixed spacing between adjacent subcarriers" (increasing the number of subcarriers for a constant sampling rate will increase the number of carriers while keeping the carrier spacing fixed, **Fig. 3, col. 6, lines 51-54**);

"adding or subtracting, by the base station, groups of subcarriers to scale the variable bandwidth wireless channel and achieve an operating channel bandwidth" (scalable OFDM system with a transmitter and receiver that adjust number of carriers to meet the desired transmission rate, **col. 3, lines 53-58; col. 6, lines 51-57**); and

Van Nee does not explicitly teach "a core-band, including a plurality of subcarrier groups, substantially centered at an operating center frequency of the different communication schemes, is utilized by the base station as a broadcast channel

carrying radio control and operation signaling, where the core-band is substantially not wider than a smallest possible operating channel bandwidth of the system".

Vanderaar teaches carrier and timing synchronization is achieved on a central, data-bearing channel. (¶ 21). A primary channel is subdivided into n sub-channels S; the channel numbering scheme is based around a center frequency fc such that a first sub-channel S_0 ("core band") is centered at a center frequency ("operating center frequency of the different communication schemes") and the remaining sub-channels are distributed about the center frequency (**Fig. 1, 3; ¶ 23, 26**). **Fig. 3** further depicts that the center channel bandwidth is, at most, equal to the smallest operating channel bandwidth, that is, the center channel bandwidth is not wider than the smallest possible operating channel bandwidth of the system. In order to maintain synchronization, the dynamic link assignment (DLA) waveform is constrained to require a special waveform in the central channel 112. The primary band 106 contains sixteen frequency-multiplexed sub-channels 108 that partially overlap in an OFDM fashion ("subcarrier groups") (**Fig. 10; ¶ 39**). The Synchronization frame 300 allows a terminal demodulator to acquire the carrier frequency and phase, as well as the symbol timing ("radio control and operation signaling"), and may be broadcast (**Fig. 5-6, ¶ 25-27**). The RAC frame 700 contains information that allows users to enter the transmission system or receive messages based on a broadcast ID (**Fig. 7, ¶ 32**). Further Vanderaar teaches that this adaptive transmission is applicable to any multi-user digital communication system in which data transmission is to a number of users each operating under different conditions, (**¶ 21**).

Vanderaar and van Nee are analogous art in that they both pertain to dynamically adapting transmission parameters based on transmission capabilities of the transmitter and receiver. It would have been obvious to one skilled in the art at the time the invention was made to use the center frequency to provide carrier and timing information as taught in Vanderaar with the dynamically scalable system in van Nee for the purpose of providing more efficient use of bandwidth by providing adaptive control on a user basis without requiring resynchronization.

As to **claim 2**, van Nee in view of Vanderaar discloses all of claim 1.

van Nee further discloses “the information bearing signal is an orthogonal frequency division multiple access (OFDMA) signal (scalable OFDM system, **Fig. 1, col. 3, line 66** through **col. 4, line 17**).

Vanderaar further discloses the signal is “utilized in a downlink where a duplexing technique that is either Time Division Duplexing (TDD) or Frequency Division Duplexing (FDD)” (variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM), **¶ 21**).

As to **Claim 6**, van Nee discloses a method comprising:

“maintaining a fixed spacing between adjacent subcarriers ” (increasing the number of subcarriers for a constant sampling rate will increase the number of carriers while keeping the carrier spacing fixed, **Fig. 3, col. 6, lines 51-54**);

"adjusting a number of groups of subcarriers to scale a channel and attain an operational bandwidth" (bandwidth can be varied by modifying the number of subcarriers, **col. 3, lines 53-58**); and

"scanning spectral bands of different center frequencies" (the receiver performs measurements on received signals (scans) and provides feedback to the transmitter to dynamically scale the operating characteristics of the channel, **Fig. 4**, col. 7, line 62 through col. 8, line 19).

van Nee does not disclose "utilizing a core-band, substantially centered at an operating center frequency to carry synchronization information, wherein the core-band is narrower or equal to than a smallest possible operating channel bandwidth of the network" and "detecting the synchronization information in the core-band of the operating center frequency and decoding a broadcast channel carrying radio control and operation signaling provided by a base station to the mobile station via the core band".

Vanderaar teaches carrier and timing synchronization is achieved on a central, data-bearing channel. (¶ 21). A primary channel is subdivided into n sub-channels S; the channel numbering scheme is based around a center frequency fc such that a first sub-channel S_0 ("core band") is centered at a center frequency ("operating center frequency of the different communication schemes") and the remaining sub-channels are distributed about the center frequency (**Fig. 1, 3; ¶ 23, 26**). **Fig. 3** further depicts that the center channel bandwidth is, at most, equal to the smallest operating channel bandwidth, that is, the center channel bandwidth is not wider than the smallest possible

operating channel bandwidth of the system. In order to maintain synchronization, the dynamic link assignment (DLA) waveform is constrained to require a special waveform in the central channel 112. The primary band 106 contains sixteen frequency-multiplexed sub-channels 108 that partially overlap in an OFDM fashion ("subcarrier groups") (**Fig. 10; ¶ 39**). The Synchronization frame 300 allows a terminal demodulator to acquire the carrier frequency and phase, as well as the symbol timing ("radio control and operation signaling"), and may be broadcast (**Fig. 5-6, ¶ 25-27**). The RAC frame 700 contains information that allows users to enter the transmission system or receive messages based on a broadcast ID (**Fig. 7, ¶ 32**). Further Vanderaar teaches that this adaptive transmission is applicable to any multi-user digital communication system in which data transmission is to a number of users each operating under different conditions, (**¶ 21**).

Vanderaar and van Nee are analogous art in that they both pertain to dynamically adapting transmission parameters based on transmission capabilities of the transmitter and receiver. It would have been obvious to one skilled in the art at the time the invention was made to use the center frequency to provide carrier and timing information as taught in Vanderaar with the dynamically scalable system in van Nee for the purpose of providing more efficient use of bandwidth by providing adaptive control on a user basis without requiring resynchronization.

As to **claim 8**, van Nee in view of Vanderaar discloses the method of claim 6.

Vanderaar further discloses "the signal is an orthogonal frequency division multiple access (OFDMA), and the signal is utilized in a downlink, with a depleting

technique that is either Time Division Duplexing (TDD) or Frequency Division Duplexing (FDD)" (variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM) (**¶ 21**)).

As to **claim 11**, van Nee discloses a transceiver comprising:

"an analog-to-digital converter for signal sampling"(**Fig. 4** depicting an OFDM receiver with an A/D component) ;

"a Fast Fourier Transform and Inverse Fast Fourier Transform processor (FFT/IFFT), wherein fixed spacing between carriers is maintained" (increasing the number of subcarriers for a constant sampling rate will increase the number of carriers while keeping the carrier spacing fixed, **Fig. 3, col. 6, lines 51-54**);

"a scanner for scanning spectral bands of specified center frequencies" (the receiver performs measurements on received signals (scans) and provides feedback to the transmitter to dynamically scale the operating characteristics of the channel, **Fig. 4**, col. 7, line 62 through col. 8, line 19); and

"a facility for adding groups to widen the channel bandwidth for remainder of the communication" (scalable OFDM system including an OFDM receiver, **Fig. 4**, for adjusting the number of carriers to meet the desired transmission rate, **col. 3, lines 53-58; col. 6, lines 51-57**).

van Nee does not teach "a facility for decoding a broadcast channel including radio control and operation signaling associated with the area in a core-band including a

plurality of groups, wherein the core-band is not wider than a smallest possible operating channel bandwidth of the network".

Vanderaar teaches carrier and timing synchronization is achieved on a central, data-bearing channel. (¶ 21). A primary channel is subdivided into n sub-channels S; the channel numbering scheme is based around a center frequency fc such that a first sub-channel S_0 ("core band") is centered at a center frequency ("operating center frequency of the different communication schemes") and the remaining sub-channels are distributed about the center frequency (**Fig. 1, 3; ¶ 23, 26**). **Fig. 3** further depicts that the center channel bandwidth is, at most, equal to the smallest operating channel bandwidth, that is, the center channel bandwidth is not wider than the smallest possible operating channel bandwidth of the system. In order to maintain synchronization, the dynamic link assignment (DLA) waveform is constrained to require a special waveform in the central channel 112. The primary band 106 contains sixteen frequency-multiplexed sub-channels 108 that partially overlap in an OFDM fashion ("subcarrier groups") (**Fig. 10; ¶ 39**). The Synchronization frame 300 allows a terminal demodulator to acquire the carrier frequency and phase, as well as the symbol timing ("radio control and operation signaling"), and may be broadcast (**Fig. 5-6, ¶ 25-27**). The RAC frame 700 contains information that allows users to enter the transmission system or receive messages based on a broadcast ID (**Fig. 7, ¶ 32**). Further Vanderaar teaches that this adaptive transmission is applicable to any multi-user digital communication system in which data transmission is to a number of users each operating under different conditions, (**¶ 21**).

Vanderaar and van Nee are analogous art in that they both pertain to dynamically adapting transmission parameters based on transmission capabilities of the transmitter and receiver. It would have been obvious to one skilled in the art at the time the invention was made to use the center frequency to provide carrier and timing information as taught in Vanderaar with the dynamically scalable system in van Nee for the purpose of providing more efficient use of bandwidth by providing adaptive control on a user basis without requiring resynchronization.

As to **claim 13**, van Nee in view of Vanderaar disclose all of claim 11.

Van Nee further discloses "the communication signal is an orthogonal frequency division multiple access (OFDMA) signal, and the communication signal is utilized in a downlink, with a duplexing technique that is either Time Division Duplexing (TDD) or Frequency Division Duplexing (FDD)" (in a scalable OFDM system it was well known in the art at the time the invention was made that either TDD or FDD could be used on the uplink and/or downlink).

7. **Claims 22-30 and 32-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Vanderaar et al. (US PGPub 2007/0208884)** ("Vanderaar") in view of **McGovern et al. (US PGPub 2002/0142777)** ("McGovern").

As to **claims 22 and 32**, Vanderaar discloses a cellular base station comprising:

"circuitry configured to transmit a broadcast channel in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of subcarrier groups, wherein each subcarrier group includes a plurality of subcarriers"

(Vanderaar discloses carrier and timing synchronization is achieved on a central, data-bearing channel (core-band) (**¶ 21**). The Receive Access Channel (RAC) slot supports broadcast information for users not registered with the system (**Fig. 7; ¶ 29)**. A primary channel is subdivided into n sub-channels S; the channel numbering scheme is based around a center frequency fc such that a first sub-channel S_0 ("core band") is centered at a center frequency ("operating center frequency of the different communication schemes") and the remaining sub-channels are distributed about the center frequency, **Fig. 1, 3; ¶ 23, 26**; it is further implicit that in an OFDM system (**¶ 21**), the center channel (core band) will be comprised of a group of subcarriers; Vanderaar allows variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM) (**¶ 21**), in which it is implicit that when applying OFDM variable modulation and coding formats (**¶ 21**), the group of subcarriers will be adapted to the various coding and formats, and further teaches the system may be a point (base station) to multi-point (cell phones) configuration, **¶ 42**).

Vanderaar does not explicitly disclose "circuitry configured to transmit control and data channels using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band".

Vanderaar teaches dynamic link assignment (DLA) allows communication system to dynamically customize the forward link on a per-user basis (**¶ 20-21**). Vanderaar allows variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division

Multiplexing (OFDM) (**¶ 21**), in which it is implicit that when applying OFDM variable modulation and coding formats (**¶ 21**), the group of subcarriers will be adapted to the various coding and formats. Vanderaar further teaches the system may be a point (base station) to multi-point (cell phones) configuration, **¶ 42**).

McGovern teaches dynamic channel bandwidth allowing variable bandwidth channels, i.e. narrowband, wideband, or a combination of both (**¶ 13**). The mobile station receives a list of available channels from a broadcast control channel, e.g. then scans for the center frequencies to find one with acceptable signal quality (¶ 27). The mobile station tunes to the center frequency of the channel selected and therefore, the variable band includes the center frequency (**¶ 22**).

It would have been obvious to one skilled in the art at the time the invention was made to combine the central, data-bearing channel of Vanderaar with the dynamic bandwidth allocation of McGovern for the purpose of providing more efficient use of bandwidth by providing adaptive control on a user basis without requiring resynchronization.

As to **claims 23 and 33**, Vanderaar in view of McGovern discloses the cellular base station of claim 22.

Vanderaar further discloses wherein the circuitry “is further configured to transmit radio network information in the broadcast channel” (carrier and timing synchronization (“radio network information”) is achieved on a central, data-bearing channel (“core-band”) (**¶ 21**); the central channel supports individual, multicast and broadcast users.

As to **claims 24 and 34**, Vanderaar in view of McGovern discloses the cellular base station of claim 22.

Vanderaar further discloses circuitry configured to transmit synchronization information in the core-band (carrier and timing synchronization (“radio network information”) is achieved on a central, data-bearing channel (“core-band”) (**¶ 21**).

As to **claims 25 and 35**, Vanderaar in view of McGovern discloses the cellular base station of claim 22.

Vanderaar further discloses the circuitry is further configured to transmit in a time slot format (variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM), **¶ 21**), both of which have a time slot element).

As to **claims 26 and 36**, Vanderaar in view of McGovern discloses the cellular base station of claim 22.

Vanderaar further discloses the base station operates in an OFDMA frequency division duplex (FDD) or time division duplex (TDD) mode (variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM), **¶ 21**).

As to **claims 27 and 37**, Vanderaar discloses a cellular mobile station (the system may be a point (base station) to multi-point (cell phones) configuration, **¶ 42**) comprising:

“circuitry configured to receive synchronization information from a base station in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the

core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of subcarrier groups where each subcarrier group includes a plurality of subcarriers" Vanderaar teaches dynamic link assignment (DLA) allows communication system to dynamically customize the forward link on a per-user basis (**¶ 20-21**). Vanderaar allows variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM) (**¶ 21**), in which it is implicit that when applying OFDM variable modulation and coding formats (**¶ 21**), the group of subcarriers will be adapted to the various coding and formats. Vanderaar further teaches the system may be a point (base station) to multi-point (cell phones) configuration, **¶ 42**); and

circuitry configured to synchronize with the base station using the received synchronization information (it is anticipated that the synchronization sent by the transmitter will be used for synchronization by the receiver).

Vanderaar in view of McGovern does not explicitly disclose "circuitry configured to receive control and data channels using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band".

Vanderaar teaches dynamic link assignment (DLA) allows communication system to dynamically customize the forward link on a per-user basis (**¶ 20-21**). Vanderaar allows variable modulation and coding formats on a per-user basis through the use of Time Division Multiplexing (TDM) and Orthogonal Frequency Division Multiplexing (OFDM) (**¶ 21**), in which it is implicit that when applying OFDM variable modulation and coding formats (**¶ 21**), the group of subcarriers will be adapted to the

various coding and formats. Vanderaar further teaches the system may be a point (base station) to multi-point (cell phones) configuration, **¶ 42**).

McGovern teaches dynamic channel bandwidth in which channel assignment is via inband control instead of dedicated control channel to allow variable bandwidth channels, i.e. narrowband, wideband, or a combination of both (**¶ 13**). The mobile station receives a list of available channels from a broadcast control channel, e.g. then scans for the center frequencies to find one with acceptable signal quality (¶ 27). The mobile station tunes to the center frequency of the channel selected and therefore, the variable band includes the center frequency (¶ 22).

It would have been obvious to one skilled in the art at the time the invention was made to combine the central control channel of Vanderaar in view of McGovern with the dynamic bandwidth allocation of McGovern for the purpose of providing more efficient use of bandwidth by providing adaptive control on a user basis without requiring resynchronization.

As to **claims 28 and 38**, Vanderaar in view of McGovern discloses the cellular mobile station of claim 27.

Vanderaar further discloses the circuitry configured to receive the synchronization information from the base station in the core-band is further configured to receive the cell identification information from the base station in the core-band (carrier and timing synchronization is achieved on a central, data-bearing channel (core-band) (**¶ 21**); it is anticipated that the carrier and timing synchronization contains cell identification information).

As to **claims 29 and 39**, Vanderaar in view of McGovern discloses the cellular mobile station of claim 27.

Vanderaar further discloses circuitry configured to receive a broadcast channel in the core-band (In order to maintain accurate synchronization, the DLA waveform is constrained to require a special waveform in the central channel; the central channel 112 is received at the baseband, and uses a special waveform in order to maintain synchronization; information must be present in all channel-zero 112 slots, **Fig. 3; ¶ 26**).

As to **claims 30 and 40**, Vanderaar in view of McGovern discloses the cellular mobile station of claim 29.

Vanderaar further discloses the broadcast channel carries radio network information (carrier and timing synchronization (radio network information) is achieved on a central, data-bearing channel (core-band), **¶ 21**).

8. **Claims 31 and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Vanderaar et al. (US PGPub 2007/0208884)** ("Vanderaar") in view of in view of **McGovern et al. (US PGPub 2002/0142777)** ("McGovern") and further in view of **Kim et al. (US Patent No. 7,376,424)** ("Kim").

As to **claims 31 and 41**, Vanderaar in view of McGovern discloses the cellular mobile station of claim 27.

Vanderaar in view of McGovern does not explicitly disclose "circuitry configured to transmit a preamble after synchronizing with the base station".

Kim teaches that if a mobile station is performing an inter-frequency hard handover, the mobile station target base station acquires synchronization of signals

transmitted from the mobile station by using the preamble of the transmitted by the mobile station through the new frequency, **col. 7, lines 10-24**; therefore, after a mobile station has synchronized with a currently serving base station, the mobile station will send an uplink preamble to a target base station before handover).

It would have been obvious to one skilled in the art at the time the invention was made that a mobile station of Vanderaar in view of McGovern could perform a handover as taught in Kim in which the mobile sends a preamble.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA L. SEKUL whose telephone number is (571)270-7636. The examiner can normally be reached on Monday - Friday 9:00-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MARIA L. SEKUL
Examiner
Art Unit 2461

/Dmitry H. Levitan/
Primary Examiner, Art Unit 2461